

# NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

## FACT SHEET

(Pursuant to NAC 445A.236)

### Winnemucca Farms – NEV89012

June 2004

**PERMITTEE NAME:** Winnemucca Farms, Incorporated

**PERMIT NUMBER:** NEV89012 - Renewal

**LOCATION:** 1 Potato Place  
Winnemucca, Nevada 89445

Latitude: 40°56'19" North  
Longitude: 117°45'37" West  
Section 31, Township 36 North, Range 38 East, M.D.B.&M.

#### **GENERAL:**

Winnemucca Farms, Incorporated operates a combination fresh pack and potato flake processing operation in west Winnemucca, Nevada, immediately south of U.S. Highway I-80. Potato processing operations occur year-round, except during periods of equipment maintenance, product testing, or process refinement.

Wastewater generated from potato washing and ancillary facility operations is treated using a BIOLAC extended aeration treatment system. The system uses floating aeration chains, fixed at both ends of the basin, that free-float and span the extent of the basin. These chains aerate and mix the influent, providing the physical conditions favorable to microbial digestion of wastewater constituents. Activated sludge (microbial population) within the aerated basin metabolize excess waste constituents, effectively removing potato waste.

An integrated clarifier selectively returns and mixes a portion of recovered activated sludge with incoming wastewater to maintain optimal biological activity, and concurrently wastes excess biomass (waste activated sludge, WAS) to a dewatering, solids management system. Waste activated sludge is pumped into a centrifuge where most of the water is removed, rendering a solids content of approximately 20%. This dewatered material is transported to roll-off-bins for transport to off-site locations for use as a soil amendment. Approximately 15 cubic yards of dewatered solids are generated daily.

Treated wastewater is used for agricultural irrigation of up to nine (9), designated crop-bearing fields. Crops are not cultivated year-round, but several crops are harvested during the growing season, which extends from approximately April through October. The existing permit authorizes discharge of treated wastewater during fall and winter months when the ground is not frozen. The facility uses an 8.3 million-gallon storage pond for process water storage to avoid process interruption when the ground is frozen.

The process and irrigation water surge pond is double-lined with a 60-mil, high density polyethylene (HDPE) primary liner and a 40-mil HDPE secondary liner sloped to a leak detection and collection sump. The pond has a working capacity of 8.3 million-gallons and is sloped at a 1% grade to a sludge collection sump piped to a sludge pump sump. Most of the bulk sludge and residual solids from potato washing, as well as the WAS from the BIOLAC system, are recovered prior to discharge to the surge pond, leaving only very fine sediments, in nominal amounts, to settle during storage.

#### **DISCHARGE CHARACTERISTICS**

The discharge is treated potato processing water, used primarily for washing potatoes prior to rendering. During

the permit term from 1998 to 2003, the discharge effluent from the BIOLAC system was monitored for chemical oxygen demand (COD), total nitrogen, fecal coliform, and pH. During first quarter 2004: COD fluctuated between 160 and 240 milligrams per liter (mg/L), total nitrogen fluctuated between 31 and 35 mg/L, and fecal coliform fluctuated between 20 and 2,400 colony forming units per 100 milliliters (CFU/100 mL). Historic fecal coliform counts have ranged between orders of magnitude of  $10^3$  to  $10^4$  CFU/100 mL (e.g. 62,000 in September 2002). Effluent concentrations of nitrate and TDS were not required to be monitored under the conditions of the previous permit, although groundwater monitoring for these constituents was specified.

It should be noted that the effluent from the BIOLAC system is not directly indicative of the quality of water used for spray irrigation of crop-bearing fields or surface discharge when ground is not frozen. Additional anaerobic denitrification in the storage pond and combination with make-up water pumped from the on-site production well change the characteristic profile of water used for irrigation from the storage pond. Consequently, the point of compliance in the proposed permit for renewal is at the point of discharge from the storage pond to discharge for irrigation or surface application.

#### **RECEIVING WATER CHARACTERISTICS:**

The discharge, either for irrigation during the growing season or for surface application (percolation) during the fall and winter months, is to groundwater. Shallow groundwater occurs at approximately 50 to 80 feet below grade surface (bgs) at on-site well locations and in wells within approximately 0.25 to one-mile of the irrigation fields. Groundwater flow direction varies from the west-southwest to the west-northwest (SRK, September 1996), and exhibits a relatively flat gradient on the order of 0.001 to 0.002 foot per foot ('/').

Site characterization activities conducted in early 1996 examined the possibility that groundwater may exhibit mounding beneath the application fields, in which case, groundwater flow could be projected in a northwesterly direction on the west side of the fields and in a southeasterly direction on the east side of the fields (Converse Consultants Southwest, April 1996). While mounding can have a tendency to bias localized groundwater data, it is generally accepted that the regional groundwater flow direction is west-southwest toward the Humboldt River. Furthermore, current interpretations of groundwater data collected during the second quarter of years 2000 through 2004 suggests that the west-southwest to westerly flow direction has remained relatively consistent, during the permit term, at a gradient of approximately 0.001'/'.

Groundwater concentrations of nitrate at monitoring well locations within the irrigation fields have ranged from 3 to 170 milligrams per liter (mg/L, 1996-2003 groundwater monitoring data). Steffen Robertson and Kirsten, Incorporated (SRK) conducted phased studies (I and II) in 1996 and 1997 to identify whether treated process water had caused increases in nitrate concentrations in groundwater beneath and in the proximity of the irrigation fields. Other ancillary constituents such as chlorides, sulfate, iron, and magnesium were also examined.

SRK concluded that there was sufficient evidence to suggest that irrigation water had not percolated to depth, and therefore, had not impacted groundwater. Opinions from the review of third-party consultant firms including: Converse Consultants Southwest, Watersource Consulting Engineers, Lahontan GeoSciences, and Camp Dresser & McKee, Incorporated (CDM) disputed the validity of this conclusion either based on the implications of the data presented or the absence of sufficient data to formulate the conclusions presented in the SRK reports.

Despite contrary contentions regarding the studies performed in 1996 and 1997, the range and relativity of nitrate as nitrogen (-N) concentrations reported for groundwater samples collected from on-site groundwater monitoring wells does not illustrate a clear pattern. While sample concentrations at specific locations appear to be increasing, particularly at groundwater monitoring locations MW-2, MW-3, and MW-5, which are all located near the western, presumably downgradient edge of the irrigation fields, the range of concentrations observed is greater than the concentration of nitrate in the effluent discharge from the BIOLAC system. Nitrate-N concentrations at these westerly, downgradient locations generally range from 30 to 75 mg/L, compared to total nitrogen BIOLAC discharge concentrations ranging from less than 2.2 to 65 mg/L, with an average concentration of approximately 20 mg/L total nitrogen based on data collected from January 1998 through March 2004. Nitrate-N groundwater concentrations at monitoring locations MW-1 and MW-1A, located at the eastern, presumably upgradient, edge of the irrigation fields are comparatively erratic, but fluctuate in a range between approximately

7 and 50 mg/L.

Historic groundwater data collected at monitoring well locations MW-4 and MW-5, which were located along the east and west property boundaries at the north end (upgradient) of the irrigation plot(s), have exhibited some of the most elevated concentrations observed at the property. In April 2001, groundwater at monitoring well location MW-4 contained 160 mg/L nitrate, and similarly at monitoring well MW-5, nitrate concentrations were quantified at 120 and 170 mg/L in January and October 2000, respectively. Groundwater monitoring data at these locations was unavailable between April 2001 and October 2003 because the wells were either damaged or dry.

In November 2003, corresponding replacement wells MW-4A and MW-5A were installed to retire wells MW-4 and MW-5. Subsequent groundwater data reflecting conditions within approximately 25-feet of abandoned wells MW-4 and MW-5, indicates a decreasing trend of nitrate concentration from 100 down to 78 mg/L at MW-4A and from 26 down to 22 mg/L at MW-5A (Nov. 2003, Jan. 2004, and Apr. 2004).

Total dissolved solids (TDS) concentrations increased at monitoring well locations MW-3, MW-4, and MW-5. In June 1995, the TDS concentration at MW-3 was 1,130 mg/L, and by January 2002, it was 3,100 mg/L. Similarly, at MW-4 and MW-5, TDS concentration were 335 and 572 mg/L, respectively, in January 1996, increasing to 3,500 mg/L at MW-4 in April 2001 and increasing to a maximum measured concentration of 7,000 mg/L at MW-5 in October 2000. As of May 2004, TDS concentrations at replacement wells MW-4A and MW-5A were quantified at 2,200 and 5,200 mg/L, respectively.

Because the discharge TDS concentration has not been monitored, observed increases cannot be empirically attributed to infiltration of treated process water, and since monitoring locations MW-4 and MW-5 are regarded as upgradient monitoring locations, there remains a possibility that the observed TDS profile is a ramification of other affects. Monitoring treated process water discharged for irrigation or surface application is stipulated in the proposed permit renewal for future comparative purposes.

Current data reflecting groundwater conditions off-site and upgradient of the irrigation fields is not available, either to the east-southeast or to the northwest (from mounding) of the site. However, groundwater monitoring wells MW-1 and MW-1A are located along the southeastern edge of the property boundary and monitoring wells MW-4A and MW-5A are located in a northerly direction with respect to irrigated fields, providing relatively upgradient vantages with respect to primary gradient vectors extending to the south and west. The number and configuration of existing wells is considered sufficient to satisfy policy requirements stipulating upgradient and downgradient monitoring locations at a site using treated water for reuse irrigation purposes.

Historic data at off-site and presumed upgradient (east) domestic well locations dating between 1986 and 1996 indicates groundwater nitrate-N concentrations ranging from approximately 4 to 11 mg/L<sup>1</sup> (Grass Valley Road). The groundwater concentration of nitrate-N at monitoring well MW-1C (GV Well), installed by Converse Consultants Southwest in March 1996 immediately east (upgradient) across Grass Valley Road from irrigation Field 2, was 0.5 mg/L at that time. This is the nearest off-site, upgradient well identified in records on file, however groundwater monitoring at this location has not been conducted under the conditions of the current permit. Groundwater monitoring at well location MW-1C (GV Well) is included in the groundwater monitoring program in the proposed permit for renewal on an 'as available' basis since it is located on private property and access is dependent upon property-owner authorization.

An additional well just east of Grass Valley Road and north of MW-1C (GV Well), CMW #5, is reportedly maintained by Humboldt County. When groundwater is available to be sampled at this well location, either as a function of access or water level, Winnemucca Farms is also required to report and/or monitor and report data representing groundwater conditions at the CMW #5 location as a function of permitted groundwater monitoring requirements.

Existing well construction specifications are summarized as follows:

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<sup>1</sup> Report of Environmental Services Background Data Collection, Steffen Robertson and Kirsten, April 20, 1996, p.18 (7.2.2) Report of Findings: Task II Environmental Services, Steffen Robertson and Kirsten, July 1, 1994, p.28 Table 4.

| WELL DESIGNATION | SITE LOCATION                     | TOTAL DEPTH (FEET BGS) | SCREENED INTERVAL (FEET BGS) | SLOT SIZE (INCH) | NITRATE CONCENTRATION (MG/L) <sup>1</sup> |
|------------------|-----------------------------------|------------------------|------------------------------|------------------|---|
| MW-1             | East of Field 3                   | 84                     | 59-79                        | 0.020            | 30  |
| MW-1A            | East of Field 3, adjacent to MW-1 | 81                     | 50-80                        | 0.020            | 76  |
| MW-1C            | East, across Grass Valley Road    | 73                     | 53-73                        | 0.020            | 0.5 (1996)                                |
| MW-2             | North-northwest of Field 3        | 85                     | 50-80                        | 0.020            | 24  |
| MW-3             | West of Field 1                   | 85                     | 50-80                        | 0.020            | 56  |
| MW-4A            | Southeast of Field 4              | 100                    | 60-100                       | 0.020            | 78  |
| MW-5A            | Northwest of Field 4              | 100                    | 60-100                       | 0.020            | 22  |

<sup>1</sup>: Data reported for May 2004.

Several domestic wells are located south and west (downgradient) of the irrigation fields, and many, if not all, of these locations are also served by individual sewage disposal systems (septic tanks). Similarly, homes or dwellings in the Grass Valley community, developed east-southeast of the irrigation fields (upgradient), also use individual sewage disposal systems, which because of the number and density of residences in the area, may constitute an area-source of regional nitrate concentrations in groundwater.

#### **PROPOSED LIMITATIONS:**

The use of reclaimed water to irrigate fields will be subject to specific monitoring and threshold conditions instituted to avoid impacts to groundwater. Because it is unclear whether groundwater quality in the vicinity of the irrigation fields is influenced by the discharge of treated process water, and it is unproven that it is not influenced by irrigation with treated process water, permit conditions that prevent degradation of groundwater because of reuse irrigation are necessary to protect source water in the area. Most importantly, the discharge of nitrate in treated water used for irrigation is limited in order to attenuate potential nitrate contributions to the upper-most aquifer, and deter potential impacts to current or prospective drinking water sources.

Consistent with this objective, the groundwater monitoring program is expanded to include data collection and reporting for the two (2) additional upgradient wells MW-1C (GV Well) and CMW #5 (as available) to examine the characteristic profile of upgradient groundwater west of the irrigation fields. Quarterly graphic and numeric presentations of groundwater gradient and flow direction are also additional conditions instituted in the proposed renewal.

#### **Effluent Discharge Limitations:**

During the period beginning on the effective date of this permit and lasting until the permit expires, the Permittee is authorized to discharge from:

Outfall 001: Discharge to the irrigation fields.

Effluent samples and/or measurements taken in compliance with the monitoring requirements specified below shall be collected at:

EFF: At the storage reservoir inlet structure, representing the discharge of the BIOLAC™ treatment plant; and,

IRR: At the pump station discharging from the storage reservoir to the irrigation fields.

The discharge of treated process water through the BIOLAC system and from Outfall 001 shall be limited and monitored as follows:

### EFFLUENT REUSE LIMITATIONS

| PARAMETERS                                | DISCHARGE LIMITATIONS  |                        |                  | MONITORING REQUIREMENTS |                       |                                 |
|---|--|------------------------|------------------|-------------------------|-----------------------|---------------------------------|
|   | 30-Day Average   | Daily Maximum          | Monthly Total    | Sample Location         | Measurement Frequency | Sample Type                     |
| Flow Rate (MGD)                           | 0.75   | 1.0                    | ----             | EFF                     | Continuous            | Meter                           |
| Application Volume <sup>1</sup> (gallons) | ----   | ----                   | Monitor & Report | IRR                     | Monthly               | Calculation (EFF & Supply Well) |
| COD (mg/L)                                | ----   | Monitor & Report       | ----             | IRR                     | Monthly               | Discrete                        |
| COD (lb/acre/day)                         | 25:  | November through March |                  | ----                    | Monthly               | Calculation                     |
|   | 50:  | April through October  |                  |                         |                       |                                 |
| pH (SU)                                   | Between 6.0 – 9.0  |                        |                  | IRR                     | Monthly               | Discrete                        |
| Total Dissolved Solids (TDS, mg/L)        | ----   | Monitor & Report       | ----             | IRR                     | Monthly               | Discrete                        |
| Nitrate as N (mg/L)                       | ----   | Monitor & Report       | ----             | IRR                     | Monthly               | Discrete                        |
|   | 10 as a 12-month rolling, flow-weighted average <sup>2</sup> |                        |                  |                         | Quarterly             |                                 |
| Ammonia as N (mg/L)                       | 30   |                        |                  | IRR                     | Monthly               | Discrete                        |
| Total Nitrogen as N (mg/L)                | ----   | Monitor & Report       | ----             | IRR                     | Monthly               | Discrete                        |

MGD: Million gallons per day  
 CFU/100 mL: Colony forming units per milliliter  
 COD: Carbonaceous biochemical oxygen demand  
 SU: Standard units  
 mg/L: Milligrams per liter  
 as N: As nitrogen

**Footnotes:**

<sup>1</sup>: The volume of treated water applied for irrigation. The total number of acres used for irrigation is approximately 189.

<sup>2</sup>: Compliance with this limitation shall be determined after the first 12 months of data reported after the effective date of this permit, and shall continue quarterly, thereafter.

Non-compliance or exceedence of this permit limitation occurs when the 12-month rolling average exceeds 10 mg/L for two (2) sequential quarters, or when the 12-month rolling, weighted average exceeds 10 mg/L more than twice within an 18-month period.

The process and irrigation water surge pond leak detection sump shall be inspected quarterly, unless water is detected, at which time, inspection and evacuation shall be conducted monthly. Inspection parameters and fluid management procedures shall be detailed in a section of the Process Water Management Plan. Inspection results shall be recorded in a permanent log maintained on site and made available for review at the request of the Division.

**Rationale:**

**Flow Rate:** The flow rate is limited to the design capacity of the BIOLAC treatment system approved by the Nevada Division of Environmental Protection, Bureau of Water Pollution Control (Division).

**Application Volume:** The cumulative amount of treated process water applied to irrigation fields is required to be monitored and reported on a monthly basis to allow for future calculations of constituent mass loading.

**Carbonaceous Biochemical Oxygen Demand:** This parameter is required to be monitored to ensure that COD mass loading does not cause nuisance issues, most notably odor, and that mass loading does not cause oxygen depravation in soil. While BOD<sub>5</sub> is a more commonly used indicator for purposes of agricultural discharge, COD is faster and easier to perform, and correlating COD limitations are assigned at approximately 50% of those that would otherwise be assigned for BOD<sub>5</sub>. Consequently, COD data provides essentially equivalent information, and a seasonal limitation of 50 pounds per acre per day is accepted as a ceiling threshold to control objectionable odors. In the event that nuisance odors are observed despite the mass loading restriction, a definitive, narrative condition precluding objectionable odors from water treatment, storage, or irrigation activities serves as an ancillary qualifier limiting COD mass discharge.

**pH:** A pH between 6 and 9 standard units, representing an acceptably neutral range, is required for an intended discharge to groundwater.

**Total Dissolved Solids:** Groundwater quality appears to exhibit increasing TDS concentrations at monitoring well locations. Comparison to background concentrations at a presumably upgradient location is not possible given existing data. Consequently, monitoring for this constituent in the effluent discharge is required for evaluative purposes and for comparison with additional data that will be collected under the proposed permit.

**Nitrate as N (41.7 pounds per day):** The average daily discharge, based on the effluent limitation of 10 mg/L as a 12-month rolling average, is calculated to be approximately 41.7 pounds per day (#/day) over a 12-month period. The signature, diffusive-aeration 'wave action' created in the BIOLAC treatment system is capable of creating interchanging aerobic and anaerobic zones within a single treatment basin, which effectively promotes concurrent aerobic microbial digestion and anoxic denitrification. Given the elevated nitrate concentrations observed at well locations around the irrigation fields (22 to 78 mg/L in May 2004), the presence of downgradient domestic wells, and the understanding that the BIOLAC system is capable of some degree of denitrification, a discharge limitation incorporating the primary drinking water standard of 10 mg/L is clearly relevant and appropriate.

As a result of the institution of the 10 mg/L nitrate effluent discharge limitation, the need to calculate and report annual nitrogen budgets, crop cutting analyses, and the need to reduce and compile data for submittal in annual "Wastewater Land Application Site Performance" reports is eliminated. Permit reporting and compliance conditions will be considerably simpler, and the prospect for adverse nitrate impacts to groundwater will be dispelled.

**Ammonia as N (125.1 pounds per day):** This limitation is based on the 2002 Edition of the Drinking Water Standards and Health Advisories issued by EPA. The limitation is required to moderate and mitigate discharge contributions to groundwater given the understanding that soil conditions beneath the irrigation fields may contain elevated concentrations of ammonia that may impact groundwater. It is also a relevant monitoring parameter to assess the relative constitution of the non-nitrate fraction (ammonia versus organic nitrogen) of the total nitrogen concentration in the discharge.

**Total Nitrogen:** Monitoring and reporting for this parameter is required to assess the relative fractions of nitrogen compounds discharged and to provide a reference for how much nitrogen mass remains in the discharge after denitrification.

**Fecal Coliform:** Monitoring requirements for fecal coliform are removed. Data collected over the duration of the current permit (1998 to 2003) indicate fluctuating and often elevated concentrations of fecal coliform. Concentrations ranging from 1 mg/L to values on the order of 10<sup>4</sup> mg/L or more have been observed and can be expected in the discharge. Therefore, the collection of additional data that continues to confirm expectations that fecal coliform concentrations are highly variable and often elevated is not deductive.

More important than the quantified concentrations of fecal coliform in the discharge, is how to control and reduce potential exposure mechanisms associated with fecal coliform during discharge. Winnemucca Farms has instituted additional engineering control mechanisms to moderate discharge pressure, velocity, and dispersion to abate aerosol drift of treated process water used for irrigation, particularly during wind events common to the Winnemucca area.

In order to address concerns associated with unintended dispersion of water containing fecal coliform, Winnemucca Farms recently: (1) installed drop tubes to lower sprinkler heads near ground level; (2) replaced sprinkler heads with low-pressure, anti-drift heads and nozzles; and (3) installed a pressure reducing valve to throttle pressure to 20 pounds per square inch (psi). The drop tubes are adjusted to the maximum length that will still clear the standing crop, and the anti-drift sprinkler heads and nozzles are designed to operate at the adjusted distribution pressure of 20 psi.

Implementation of these engineering controls addresses concerns of unmitigated fecal coliform exposure, and since it is acknowledged that there remains an empirical probability that fecal coliform concentrations in treated process water will periodically elevate, the purpose of continued fecal coliform monitoring and reporting is unproductive. Therefore, this parameter is omitted from the proposed conditions for a renewed permit.

### **Ground Water Monitoring**

Groundwater monitoring requirements are maintained to continue to assess potential hydraulic impacts associated with irrigation using treated process water. While the nitrate effluent limitation alleviates concerns of nitrate impacts to groundwater, continued trend analysis of nitrogen compounds and other effluent constituents with the potential to influence groundwater quality remains relevant to ensure that groundwater is not adversely affected. Annual analysis of pumped groundwater that is used as irrigation make-up water is also required to confirm relative constituent concentrations contributed by non-contact, unprocessed groundwater. A grab sample shall be collected from the fresh water well during the month of May of each year.

In addition, the proposed permit expands the groundwater monitoring program to include the two (2) additional wells located east of Grass Valley Road, MW-1C (GV Well) and CMW #5, as accessible. Monitoring wells included in the groundwater program shall be sampled for the presence of nitrogen compounds, potassium, pH, TDS, calcium, magnesium, sodium, and chloride. Wells shall be monitored in accordance with permit conditions and procedures described in the Process Water Management Plan, which is required to be updated upon permit renewal.

Should site investigation and/or operational activities necessitate or warrant the installation of additional monitoring wells, such wells shall be incorporated into the required monitoring schedule. Plans and specifications for monitoring wells proposed or required must be submitted to the Division for review and must receive Division approval prior to installation. Wells must be constructed in general accordance with the guidance document "WTS-4: Monitoring Well Design Requirements" (NDEP, February 1997).

Monitoring wells MW-1, MW-1A, MW-1C (GV Well), MW-2, MW-3, MW-4A, MW-5A, and CMW #5 shall be monitored according to the following specifications:

*Continued on the next page* ➤

### GROUNDWATER MONITORING REQUIREMENTS

| PARAMETERS                    | GROUNDWATER LIMITATIONS | MONITORING WELL LOCATIONS <sup>1</sup> | MONITORING REQUIREMENTS            |             |
|-------------------------------|-------------------------|--|------------------------------------|-------------|
|                               |                         |  | Measurement Frequency <sup>2</sup> | Sample Type |
| Depth to Water (feet)         | Monitor & Report        | Each well                              | Quarterly                          | Discrete    |
| Groundwater Elevation (amsl)  | Monitor & Report        | Each well                              | Quarterly                          | Discrete    |
| Total Nitrogen as N (mg/L)    | Monitor & Report        | Each well                              | Quarterly                          | Discrete    |
|                               |                         | Fresh water well                       | Annually (May)                     | Discrete    |
| Nitrate as N (mg/L)           | Monitor & Report        | Each well                              | Quarterly                          | Discrete    |
|                               |                         | Fresh water well                       | Annually (May)                     | Discrete    |
| Kjeldahl Nitrogen as N (mg/L) | Monitor & Report        | Each well                              | Quarterly                          | Discrete    |
|                               |                         | Fresh water well                       | Annually (May)                     | Discrete    |
| Total Dissolved Solids (mg/L) | Monitor & Report        | Each well                              | Quarterly                          | Discrete    |
|                               |                         | Fresh water well                       | Annually (May)                     | Discrete    |
| pH (SU)                       | Monitor & Report        | Each well                              | Quarterly                          | Discrete    |
|                               |                         | Fresh water well                       | Annually (May)                     | Discrete    |
| Potassium (mg/L)              | Monitor & Report        | Each well                              | Quarterly                          | Discrete    |
|                               |                         | Fresh water well                       | Annually (May)                     | Discrete    |
| Calcium (mg/L)                | Monitor & Report        | Each well                              | Quarterly                          | Discrete    |
|                               |                         | Fresh water well                       | Annually (May)                     | Discrete    |
| Magnesium (mg/L)              | Monitor & Report        | Each well                              | Quarterly                          | Discrete    |
|                               |                         | Fresh water well                       | Annually (May)                     | Discrete    |
| Sodium (mg/L)                 | Monitor & Report        | Each well                              | Quarterly                          | Discrete    |
|                               |                         | Fresh water well                       | Annually (May)                     | Discrete    |
| Chloride (mg/L)               | Monitor & Report        | Each well                              | Quarterly                          | Discrete    |
|                               |                         | Fresh water well                       | Annually (May)                     | Discrete    |

amsl: Above mean sea level (above)  
 mg/L: Milligram per liter  
 as N: As nitrogen  
 SU: Standard units

- <sup>1</sup>: MW-1, MW-1A, MW-1C (GV Well), MW-2, MW-3, MW-4A, MW-5A, and CMW #5. MW-1C (GV Well) and CMW #5 wells are required to be included in the groundwater monitoring program, as specified, contingent upon access authorized by private well owners or Humboldt County, as applicable.
- <sup>2</sup>: Sampling frequency may be modified or reduced, in whole or in part, at the discretion of the Nevada



Division of Environmental Protection, upon demonstration of groundwater concentrations or conditions which warrant or justify alternative monitoring schedules.

#### **SCHEDULE OF COMPLIANCE:**

The Permittee shall implement and comply with the provisions of the permit upon issuance and the following schedule of compliance, after approval by the Administrator, including in said implementation and compliance, any additions or modifications the Administrator may make in approving the schedule of compliance.

- **Upon issuance of the permit**, the Permittee shall achieve compliance with all discharge limitations;
- **Within 90 days of permit issuance (date)**, the Process Water Management Plan shall be revised and updated to accurately reflect current system conditions and operation, as well as, irrigation practices. The Process Water Management Plan shall also include: (1) a section that describes sampling and analysis protocol used for routine groundwater monitoring activities, (2) a section describing inspection criteria and fluid management procedures for the process and irrigation surge pond leak detection sump, and (3) a section describing the final disposition and handling (i.e. soil incorporation procedures) of dewatered solids.

#### **DISCHARGE MONITORING REPORTS:**

All analytical data compiled as a function of the discharge limitations, groundwater monitoring, or other activities included in the provisions of the Process Water Management Plan shall be reported to the Division in quarterly Discharge Monitoring Reports (DMR)s. Groundwater contour maps illustrating flow direction and quantitatively specifying the groundwater gradient shall be submitted with each DMR and shall reflect groundwater conditions measured during the respective monitoring period.

#### **PROPOSED DETERMINATION:**

The Division has made the tentative determination to renew the proposed permit, under the provisions prescribed, for a 5-year period. Under NAC 445A.232, this permit is classified as a *Discharge from Remediation, Dewatering, other than a discharge to ground water from the dewatering of a mine, or from a Power Plant, a Manufacturing or Food Processing Facility or any other Commercial or Industrial Facility, 250,000 gallons or more but less than 500,000 gallons daily.*

#### **PROCEDURES FOR PUBLIC COMMENT:**

Notice of the Division's intent to issue a permit authorizing the facility to discharge to ground water of the State of Nevada, subject to the conditions contained within the permit, is being sent to the **Humboldt Sun** for publication. Notice is also mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of 30 days following the date of the public notice, and must be postmarked, faxed, or e-mailed by 5:00 p.m. DST on **September 1, 2004**. The comment period can be extended at the discretion of the Administrator. A public hearing on the proposed determination can be requested by the Applicant, any affected State, any affected interstate agency, the Regional Administrator, or any interested agency, person, or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reason(s) why a hearing is warranted.

Any public hearing held by the Administrator will be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings will be conducted in accordance with NAC 445A.238. The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Prepared by:

Tamara J. Pelham  
July 29, 2004

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